

Date: Tue, 15 Feb 94 04:30:46 PST
From: Ham-Space Mailing List and Newsgroup <ham-space@ucsd.edu>
Errors-To: Ham-Space-Errors@UCSD.Edu
Reply-To: Ham-Space@UCSD.Edu
Precedence: Bulk
Subject: Ham-Space Digest V94 #30
To: Ham-Space

Ham-Space Digest Tue, 15 Feb 94 Volume 94 : Issue 30

Today's Topics:

 * SpaceNews 14-Feb-94 *
 ANS Bulletin 039.01 A0-13 OPERATIONS NET SCHEDS
 Anybody hear the shuttle?
 Daily IPS Report - 12 Feb 94
 Daily IPS Report - 13 Feb 94
 Daily IPS Report - 14 Feb 94
 Daily IPS Report - 15 Feb 94
 SAREX Update for Feb 9 at 3:30 UTC
 Two-Line Orbital Element Set: Space Shuttle

Send Replies or notes for publication to: <Ham-Space@UCSD.Edu>
Send subscription requests to: <Ham-Space-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Space Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-space".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Mon, 14 Feb 1994 11:31:26 MST
From: agate!howland.reston.ans.net!sol.ctr.columbia.edu!destroyer!nntp.cs.ubc.ca!
alberta!ve6mgs!usenet@network.ucsd.edu
Subject: * SpaceNews 14-Feb-94 *
To: ham-space@ucsd.edu

SB NEWS @ AMSAT \$SPC0214
* SpaceNews 14-Feb-94 *

BID: \$SPC0214

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SpaceNews

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MONDAY FEBRUARY 14, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

* STS-60/SAREX NEWS *

=====

Gustavo, LW2DTZ, has provided a copy of the packet transmissions he received from the SAREX experiment carried on Shuttle mission STS-60 on 06-Feb-94 at 06:56 UTC during a pass over Buenos Aires, Argentina:

W5RRR-1>QST <UI>:

Greetings from the crew of STS-60! Our current altitude is 190 nautical miles above the beautiful Earth that is the home for all of us. We are very busy with Spacehab experiments and hopefully today we will deploy the Wake Shield Facility.

W5RRR-1>QST <UI>:

Best wishes and poka!

Privet to MIR crew

Un afectuoso saludo a todos los radioaficionados hispanoamericanos desde el transbordador espacial Discovery. Nuestra mision continua en su tercer dia. hoy logramos avances importantes en la met

W5RRR-1>QST <UI>:

alurgia y la cristalizacion de
proteinas para usos medicos.

W5RRR-1>SAREX <UI>:

This is STS-60 SAREX Robot station W5RRR-1
onboard the Space Shuttle Discovery.

Those who have heard or worked the STS-60 crew and wish to receive a QSL card need to send your signal report and an SASE or an envelope and IRCs to the following address:

STS-60 QSL
Education Activities Division
ARRL
225 Main St
Newington, CT 06111
U.S.A.

In other STS-60 news, Yoshiro Yamada at the Yokohama Science Center in Japan reported observing STS-60 at a +1 magnitude on 06-Feb-94 at 05:43 JST from Yokohama.

Although several opportunities were available to see the Shuttle during the early morning hours from the east coast of the United States, observations in some areas were not possible due to thick cloud cover (and heavy snow!).

* DOVE POSTS FIRST CALLS *

=====

The first of 300 callsigns of amateurs who sent telemetry data to Junior PY2BJ0 in Brazil when DOVE was brought back on the air in December have been posted on the satellite downlink in between engineering data. The following was received by KA3AFY on Friday Feb. 4th, 1994 at 1606 UTC:

DOVE-1>BRAMST [00/00/00 02:38:32]:
4th Feb 1994

DOVE reports have been received from :

AA7WD AB6BC AD4FH CT1DNF CT1EAT CT1EEB
CT1ENC CT1ENQ CT1ERC CT1ETZ CT1EXL CT1EXT

These will change in 4 Days.

[vk7zbx]

Tune into DOVE to see if your call or the call of someone you know shows up on the telemetry being sent on 145.825 MHz. Telemetry data is no longer needed but signal reports, equipment being used to receive DOVE, and DOVE being received in classrooms would be appreciated by BRAMSAT and Junior PY2BJ0 owner of DOVE. Please send reports to:

Dr. Junior Torres De Castro (PY2BJ0)
119 Macaubal
Sao Palo
Brazil 01254

Thanks to Jim White (WD0E) and the DOVE Team for making the bulletin information available. Consult your favorite tracking program or DOVE Watcher for orbit information. Keep your eyes to the skies!

[Info via Larry Lilly, KA3AFY, "DOVE Watcher"]

* ITAMSAT BBS OPENS *

=====

After the software crash occurred on the 7 December, the ITAMSAT (IO-26) Command team decided to delay the reloading of the code, to improve the onboard software and further analyze the Whole Orbit Data dumps, to better understand the satellite motion and operation. On 06-Jan-94, the final version of the code was validated by the Command team and the BBS re-opened to all users. The housekeeping code (IHT ver 2.1) now has WOD capabilities and weekly data dumps will be taken without affecting the BBS operations. All users are reminded that the BBS callsign is ITMSAT-11 for Broadcast and ITMSAT-12 for uploads, and that the standard PB and PG ground software is needed for accessing the BBS. The downlink frequency is 435.867 MHz using BPSK at 1200 baud.

Enjoy ITAMSAT!

[Info via Alberto, I2KBD, of the ITAMSAT Command Team]

* NEW PICTURE ON AO-21 *

=====

The AO-21 satellite is transmitting a picture showing the launch of the satellite three years ago. The picture is in WEFAX format at 240 lpm. The current operating schedule is available in 1200 bps AFSK packet radio format every 10 minutes on the 145.987 MHz RUDAK-II downlink frequency:

RUDAK2>BEACON <UI>:

RUDAK-II Schedule: (down 145.987, up 435.016)

min/10 Beacon Mode

0..4 FM Repeater

5..7 WEFAX Picture

8..9 AFSK TLM

RUDAK2>BEACON <UI>:

++ Hi, this is the RUDAK-II experiment on AMSAT OSCAR 21 ++

[Info via Gustavo, LW2DTZ]

* OSCAR-13 BANDPASS *

=====

Ever wonder who is active on AMSAT-OSCAR-13? Sergio, IK5AAX, in Italy provides the following bandpass listing for the curious:

OSCAR 13 BANDPASS:

SATURDAY 05:

2238-145924 ZY0SK

2245-145915 A22BW

2312-145897 LI20WG

2333-145912 8P6SM

SUNDAY 06:

0036-145899 TI5RLI

1904-145884 K4AK

2330-145888 ZY0SK

MONDAY 07:

0018-145899 TU20J

0759-145905 Z21HJ

[Info via Sergio, IK5AAX]

★ F0-20 OPERATION SCHEDULE ★

=====

The F0-20 operation schedule is follows. Analog transponder and digital transponder will be ON for a week respectively as they were since last December.

Analog mode:

09-Feb-94 07:15 UTC -to- 16-Feb-94 07:40 UTC

23-Feb-94 08:05 UTC -to- 02-Mar-94 06:40 UTC

09-Mar-94 07:05 UTC -to- 16-Mar-94 07:30 UTC

23-Mar-94 07:52 UTC -to- 30-Mar-94 08:15 UTC

Digital mode:

Unless otherwise noted above.

[Info via Kazu Sakamoto, JJ1WTK]

★ THANKS! ★

=====

Thanks to all those who sent QSL cards, letters, and messages of appreciation regarding SpaceNews, especially:

HS1JAN KB20PQ N2GJ DL3MFM AB4U IK5AAX VK5THA WA6LVE N0TCT
Dave Bondon

★ FEEDBACK/INPUT WELCOMED ★

=====

Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107

PACKET : KD2BD @ N2KZH.NJ.USA.NA

INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
Department of Engineering and Technology
Advanced Technology Center
Brookdale Community College
Lincroft, New Jersey 07738
U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

--

John A. Magliacane, KD2BD * /\ /\ * Voice : 1-908-224-2948
Advanced Technology Center |/\ /\ /\ | Packet : KD2BD @ N2KZH.NJ.USA.NA
Brookdale Community College |/\ /\ /\ | Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * /\ /\ * Morse : -. -.. ..--- -... -..

Date: Tue, 8 Feb 1994 12:27:54 -0700
From: agate!howland.reston.ans.net!math.ohio-state.edu!cyber2.cyberstore.ca!
nntp.cs.ubc.ca!alberta!ve6mgs!usenet@network.ucsd.edu
Subject: ANS Bulletin 039.01 A0-13 OPERATIONS NET SCHEDS
To: ham-space@ucsd.edu

SB SAT @ AMSAT \$ANS-039.01
A0-13 OPERATIONS NET SCHEDS

HR AMSAT NEWS SERVICE BULLETIN 039.01 FROM AMSAT HQ
SILVER SPRING, MD FEBRUARY 8, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-039.01

Current AMSAT Operations Net Schedule For A0-13

AMSAT Operations Nets are planned for the following times. Mode-B Nets are conducted on A0-13 on a downlink frequency of 145.950 MHz. If, at the start of the OPS Net, the frequency of 145.950 MHz is being used for a QSO, OPS Net enthusiasts are asked to move to the alternate frequency of 145.955 MHz.

Date	UTC	Mode	Phs	NCS	Alt NCS
12-Feb-94	2200	B	063	W90DI	VE2LVC
20-Feb-94	0200	B	070	WA5ZIB	W5IU
28-Feb-94	0430	B	068	WB6LLO	W90DI

Any stations with information on current events would be most welcomed. Also, those interested in discussing technical issues or who have questions about any particular aspect of OSCAR statellite operations, are encouraged to join the OPS Nets. If neither of the Net Control Stations show up, any participant is invited to act as the NCS.

/EX

Date: Fri, 11 Feb 1994 17:17:49 GMT
From: amd!amdint.amd.com!dvorak.amd.com!positron!brian@decwrl.dec.com
Subject: Anybody hear the shuttle?
To: ham-space@ucsd.edu

I've been listening to every early morning pass (3-6am local) and most afternoon passes since the shuttle went up. I've only heard them a few times, and most were very weak. The only strong pass was taken up entirely by one of the astronauts continuously calling some station that obviously never answered him. :-(

I'm using the same setup that I used to get a packet contact with STS-59, so I don't think that's the problem. I'm using the same orbital program that I used then (with updated STS-60 parameters) and my times coincide closely with what is posted for Houston, so I don't think I'm missing the time window.

What gives? I'd like to hear from those of you who've worked the shuttle this time around (or even heard them reliably). What equipment are you using? If you're within a few hundred miles of Austin, Texas, do you find the posted times are good? Are they turning the packet system off at night? Is the shuttle oriented the wrong way for their indoor antenna?

Thanks for any answers you can supply...

Brian McMinn N5PSS brian.mcminn@amd.com

Date: 14 Feb 94 02:25:23 GMT
From: swrinde!sgiblab!munnari.oz.au!newshost.anu.edu.au!sserve!usage!metro!news.ci.com.au!eram!dave@network.ucsd.edu
Subject: Daily IPS Report - 12 Feb 94
To: ham-space@ucsd.edu

IPS RADIO AND SPACE SERVICES AUSTRALIA
Daily Solar And Geophysical Report
Issued at 2330 UT 11 February 1994
Summary for 11 February and Forecast up to 14 February
IPS Warning 04 was issued on 11 Feb and is still current.

1A. SOLAR SUMMARY

Activity: low

Flares: none.

Observed 10.7 cm flux/Equivalent Sunspot Number : 093/038

1B. SOLAR FORECAST

	12 February	13 February	14 February
Activity	Low	Low to moderate	Low to moderate
Fadeouts	None expected	None expected	None expected

Forecast 10.7 cm flux/Equivalent Sunspot Number : 090/034

1C. SOLAR COMMENT

None.

2A. MAGNETIC SUMMARY

Geomagnetic field at Learmonth : unsettled 00-09 and 21-24UT, and at storm levels at other times.

Estimated Indices : A	K	Observed A Index 10 February
Learmonth	35	3336 5553
Fredericksburg	32	28
Planetary	42	31

2B. MAGNETIC FORECAST

DATE	Ap	CONDITIONS
12 Feb	30	Unsettled to active levels, with occasional minor storm periods.
13 Feb	25	Active.
14 Feb	25	Active.

2C. MAGNETIC COMMENT

None.

3A. GLOBAL HF PROPAGATION SUMMARY

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH

11 Feb fair-normal poor-fair poor
PCA Event : None.

3B. GLOBAL HF PROPAGATION FORECAST

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
12 Feb	fair-normal	poor-fair	poor
13 Feb	fair-normal	poor-fair	poor
14 Feb	fair-normal	poor-fair	poor

3C. GLOBAL HF PROPAGATION COMMENT
NONE.

4A. AUSTRALIAN REGION IONOSPHERIC SUMMARY

MUFs at Sydney were near predicted monthly values, with Sporadic E blanketing at 08UT.

T index: 20

4B. AUSTRALIAN REGION IONOSPHERIC FORECAST

DATE	T-index	MUFs
12 Feb	20	10 to 15% below predicted monthly values.
13 Feb	20	10 to 15% below predicted monthly values.
14 Feb	10	10 to 20% below predicted monthly values.

Predicted Monthly T Index for February is 30.

4C. AUSTRALIAN REGION COMMENT

Intermittent Sporadic E layer, and continued geomagnetic activity, may have combined to degrade local propagation conditions yesterday. Similar conditions are expected for today. Conditions at Townsville appeared fair to normal yesterday.

--

Dave Horsfall (VK2KFU)	VK2KFU @ VK20P.NSW.AUS.OC	PGP 2.3
dave@esi.COM.AU	...munari!esi.COM.AU!dave	available

Date: 14 Feb 94 02:26:08 GMT
From: swrinde!sgiblab!munari.oz.au!newshost.anu.edu.au!sserve!usage!metro!news.ci.com.au!eram!dave@network.ucsd.edu
Subject: Daily IPS Report - 13 Feb 94
To: ham-space@ucsd.edu

IPS RADIO AND SPACE SERVICES AUSTRALIA

Daily Solar And Geophysical Report

Issued at 2330 UT 12 February 1994

Summary for 12 February and Forecast up to 15 February

IPS Warning 04 was issued on 11 Feb and is still current.

1A. SOLAR SUMMARY

Activity: very low

Flares: none.

Observed 10.7 cm flux/Equivalent Sunspot Number : 098/045

1B. SOLAR FORECAST

	13 February	14 February	15 February
Activity	Low	Low to moderate	Low to moderate
Fadeouts	None expected	None expected	None expected

Forecast 10.7 cm flux/Equivalent Sunspot Number : 103/052

1C. SOLAR COMMENT

None.

2A. MAGNETIC SUMMARY

Geomagnetic field at Learmonth : unsettled to active, apart from minor storm levels 12-15UT.

Estimated Indices : A	K	Observed A Index 11 February
Learmonth	20 3334 5443	
Fredericksburg	29	38
Planetary	35	41

2B. MAGNETIC FORECAST

DATE	Ap	CONDITIONS
13 Feb	30	Unsettled to active levels, with occasional minor storm periods.
14 Feb	30	Active.
15 Feb	40	Active to minor storm.

2C. MAGNETIC COMMENT

None.

3A. GLOBAL HF PROPAGATION SUMMARY

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
12 Feb	fair-normal	poor-fair	poor

PCA Event : None.

3B. GLOBAL HF PROPAGATION FORECAST

LATITUDE BAND

DATE	LOW	MIDDLE	HIGH
13 Feb	fair-normal	poor-fair	poor
14 Feb	fair-normal	poor-fair	poor
15 Feb	fair-normal	poor-fair	poor

3C. GLOBAL HF PROPAGATION COMMENT

Continuing geomagnetic activity is degrading global HF propagation conditions.

4A. AUSTRALIAN REGION IONOSPHERIC SUMMARY

MUFs at Sydney were near predicted monthly values.

T index: 26

4B. AUSTRALIAN REGION IONOSPHERIC FORECAST

DATE	T-index	MUFs
13 Feb	30	Near predicted monthly values.
14 Feb	10	10 to 15% below predicted monthly values.
15 Feb	0	About 20% below predicted monthly values.

Predicted Monthly T Index for February is 30.

4C. AUSTRALIAN REGION COMMENT

Regular Sporadic E layer, and continued geomagnetic activity, may have combined to degrade local propagation conditions yesterday. Similar conditions are expected for today. Conditions at Townsville appeared fair to normal yesterday.

--

Dave Horsfall (VK2KFU)	VK2KFU @ VK20P.NSW.AUS.OC	PGP 2.3
dave@esi.COM.AU	...munari!esi.COM.AU!dave	available

Date: 14 Feb 94 02:26:41 GMT

From: swrinde!sgiblab!munari.oz.au!newshost.anu.edu.au!sserve!usage!metro!news.ci.com.au!eram!dave@network.ucsd.edu

Subject: Daily IPS Report - 14 Feb 94

To: ham-space@ucsd.edu

IPS RADIO AND SPACE SERVICES AUSTRALIA

Daily Solar And Geophysical Report

Issued at 2330 UT 13 February 1994

Summary for 13 February and Forecast up to 16 February

IPS Warning 04 was issued on 11 Feb and is still current.

1A. SOLAR SUMMARY

Activity: low

Flares: none.

Observed 10.7 cm flux/Equivalent Sunspot Number : 098/045

1B. SOLAR FORECAST

	14 February	15 February	16 February
Activity	Low	Low	Low
Fadeouts	None expected	None expected	None expected

Forecast 10.7 cm flux/Equivalent Sunspot Number : 100/048

1C. SOLAR COMMENT

None.

2A. MAGNETIC SUMMARY

Geomagnetic field at Learmonth : unsettled to active, apart from minor storm levels 18-21UT.

Estimated Indices :	A	K	Observed A Index 12 February
Learmonth	23	3334 3454	
Fredericksburg	27		27
Planetary	30		36

2B. MAGNETIC FORECAST

DATE	Ap	CONDITIONS
14 Feb	30	Unsettled to active levels, with occasional minor storm periods.
15 Feb	30	Unsettled to active levels, with occasional minor storm periods.
16 Feb	20	Unsettled to active.

2C. MAGNETIC COMMENT

None.

3A. GLOBAL HF PROPAGATION SUMMARY

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
13 Feb	normal	fair	poor

PCA Event : None.

3B. GLOBAL HF PROPAGATION FORECAST

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
14 Feb	fair-normal	poor-fair	poor
15 Feb	fair-normal	poor-fair	poor

16 Feb normal fair poor-fair
3C. GLOBAL HF PROPAGATION COMMENT
NONE.

4A. AUSTRALIAN REGION IONOSPHERIC SUMMARY

MUFs at Sydney were near predicted monthly values until 16UT, apart from enhancements of 15-40% from 11-15UT, and 15-30% depressed from 17UT onwards.

T index: 36

4B. AUSTRALIAN REGION IONOSPHERIC FORECAST

DATE	T-index	MUFs
14 Feb	30	Near predicted monthly values.
15 Feb	10	10 to 20% below predicted monthly values.
16 Feb	10	10 to 20% below predicted monthly values.

Predicted Monthly T Index for February is 30.

4C. AUSTRALIAN REGION COMMENT

Intermittent Sporadic E layer, and continued geomagnetic activity, may have combined to degrade local propagation conditions yesterday. Similar conditions are expected for today. Conditions at Townsville appeared fair to normal yesterday.

--

Dave Horsfall (VK2KFU)	VK2KFU @ VK20P.NSW.AUS.OC	PGP 2.3
dave@esi.COM.AU	...munhari!esi.COM.AU!dave	available

Date: 14 Feb 94 23:25:41 GMT

From: munhari.oz.au!newshost.anu.edu.au!sserve!usage!metro!news.ci.com.au!eram!

dave@network.ucsd.edu

Subject: Daily IPS Report - 15 Feb 94

To: ham-space@ucsd.edu

IPS RADIO AND SPACE SERVICES AUSTRALIA

Daily Solar And Geophysical Report

Issued at 2330 UT 14 February 1994

Summary for 14 February and Forecast up to 17 February

IPS Warning 05 will be issued 15 Feb

1A. SOLAR SUMMARY

Activity: very low

Flares: none.

Observed 10.7 cm flux/Equivalent Sunspot Number : 101/049

1B. SOLAR FORECAST

	15 February	16 February	17 February
Activity	Very low	Very low	Very low
Fadeouts	None expected	None expected	None expected

Forecast 10.7 cm flux/Equivalent Sunspot Number : 100/048

1C. SOLAR COMMENT

None.

2A. MAGNETIC SUMMARY

Geomagnetic field at Learmonth : unsettled to active, apart from minor storm levels 15-18UT.

Estimated Indices : A	K	Observed A Index 13 February
Learmonth	25 4333 4544	
Fredericksburg	25	30
Planetary	28	28

2B. MAGNETIC FORECAST

DATE	Ap	CONDITIONS
15 Feb	25	Unsettled to active levels, with occasional minor storm periods.
16 Feb	20	Unsettled to active.
17 Feb	20	Unsettled to active.

2C. MAGNETIC COMMENT

None.

3A. GLOBAL HF PROPAGATION SUMMARY

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
14 Feb	fair-normal	fair	poor

PCA Event : None.

3B. GLOBAL HF PROPAGATION FORECAST

	LATITUDE BAND		
DATE	LOW	MIDDLE	HIGH
15 Feb	fair-normal	poor-fair	poor
16 Feb	normal	fair	poor-fair
17 Feb	normal	fair	poor-fair

3C. GLOBAL HF PROPAGATION COMMENT

NONE.

4A. AUSTRALIAN REGION IONOSPHERIC SUMMARY

MUFs at Sydney were near predicted monthly values until 09UT, and enhanced by 15-30% thereafter.

T index: 48

4B. AUSTRALIAN REGION IONOSPHERIC FORECAST

DATE	T-index	MUFs
15 Feb	50	About 15% above predicted monthly values.
16 Feb	50	About 15% above predicted monthly values.
17 Feb	40	Near predicted monthly values.

Predicted Monthly T Index for February is 30.

4C. AUSTRALIAN REGION COMMENT

Intermittent Sporadic E layer, and continued geomagnetic activity, may have combined to degrade local propagation conditions yesterday. Similar conditions are expected for today. Conditions at Townsville appeared fair to normal yesterday.

--

Dave Horsfall (VK2KFU)	VK2KFU @ VK20P.NSW.AUS.OC	PGP 2.3
dave@esi.COM.AU	...munari!esi.COM.AU!dave	available

Date: Tue, 8 Feb 1994 21:04:45 -0700

From: agate!howland.reston.ans.net!sol.ctr.columbia.edu!destroyer!nntp.cs.ubc.ca!
alberta!ve6mgs!usenet@network.ucsd.edu

Subject: SAREX Update for Feb 9 at 3:30 UTC

To: ham-space@ucsd.edu

SB SAREX @ AMSAT \$STS-60.014

SAREX Update Feb. 9 at 03:30 UTC

Three of the five school groups slated for STS-60 have now made successful contacts. The most recent success was with the Mars Middle School, in Mars, Pennsylvania. They contacted the Discovery astronauts through a Telebridge in Texas on orbit number 85. The contact was initiated by Cosmonaut/Shuttle Mission Specialist Sergei Krikalev, U5MIR. Jan Davis then joined in on the school group discussion. A total of 9 students were able to ask questions.

Please note one correction from SAREX bulletin, SB008, regarding the SAREX contact between Sergei, U5MIR, and the school group at the House of Science and Technology for Youth in Moscow, Russia. The Cosmonaut

who initiated the contact with Sergei was Musa Manarov, U2MIR. Sorry about the error.

School groups interested in communicating with the Shuttle astronauts are reminded to submit an application and proposal to the ARRL to be considered for a future contact. Final SAREX school group selections are decided approximately 6 months prior to the mission launch date. For more information, please write:

Educational Activities Division
ARRL
225 Main St
Newington, CT 06111

School groups are always welcome to listen into a school group contact when a telebridge contact occurs. We had several schools listening to the Mars, PA contact. For more details on how to listen in through the telebridge, please contact the ARRL at the above address or Frank Bauer, KA3HDO of AMSAT. His e-mail address is ka3hdo@amsat.org

The official SAREX element set for today will be GSFC-011. This element sent was generated by Ron Parise, WA4SIR of the Goddard Space Flight Center. Gil Carman, WA5NOM reports that the predictions using GSFC-011 differed from GSFC-009 by approximately 2 seconds.

STS-60

1	22977U	94006A	94	39.59046866	0.00000351	00000-0	69389-5	0	119
2	22977	56.9887	193.2605	0009224	272.9504	87.0508	15.72376812		813

Satellite: STS-60

Catalog number: 22977

Epoch time: 94039.59046866 (08 FEB 94 14:10:16.49 UTC)

Element set: GSFC-011

Inclination: 56.9887 deg

RA of node: 193.2605 deg Space Shuttle Flight STS-60

Eccentricity: 0.0009224 Keplerian Elements

Arg of perigee: 272.9504 deg

Mean anomaly: 87.0508 deg

Mean motion: 15.72376812 rev/day Semi-major Axis: 6730.2383 Km

Decay rate: 0.35E-05 rev/day*2 Apogee Alt: 358.06 Km

Epoch rev: 81 Perigee Alt: 345.64 Km

NOTE - This element set is based on NORAD element set # 011.

The spacecraft has been propagated to the next ascending node, and the orbit number has been adjusted to bring it into agreement with the NASA numbering convention.

Submitted by Frank H. Bauer, KA3HDO, for the SAREX Working Group

/EX

Date: Thu, 10 Feb 1994 15:31:32 MST
From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!
math.ohio-state.edu!cyber2.cyberstore.ca!nntp.cs.ubc.ca!alberta!ve6mgs!
usenet@network.ucsd.edu
Subject: Two-Line Orbital Element Set: Space Shuttle
To: ham-space@ucsd.edu

The most current orbital elements from the NORAD two-line element sets are carried on the Celestial BBS, (513) *253-9767*, and are updated daily (when possible). Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial BBS may be accessed 24 hours/day at 300, 1200, 2400, 4800, or 9600 bps using 8 data bits, 1 stop bit, no parity.

Element sets (also updated daily), shuttle elements, and some documentation and software are also available via anonymous ftp from archive.afit.af.mil (129.92.1.66) in the directory pub/space.

STS 60

1	22977U	94006A	94041.25000000	.00000417	00000-0	75807-5	0	154
2	22977	56.9879	185.8034	0006879	304.3677	92.0407	15.71677067	1068

1994006J

1	22998U	94006J	94040.80785293	-.00000585	00000-0	00000+0	0	10
2	22998	56.9859	187.7896	0008776	293.9389	119.8855	15.72168613	19

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Dr TS Kelso
tkelso@afit.af.mil

Assistant Professor of Space Operations
Air Force Institute of Technology

End of Ham-Space Digest V94 #30

